AMENDMENTS TO THE CLAIMS

This listing of the claims will replace all prior versions, and listings, of the claims in the application.

Listing of Claims

1. (Currently Amended) An isolated MHC class II compound comprising:

(a) an MHC class II component comprising at least a portion of an MHC class II α chain and at least a portion of an MHC class II β chain, such that said MHC class II α chain and MHC class II β chain form a peptide binding groove;

(b) a spaceholder molecule, wherein said spaceholder molecule binds with intermediate or low affinity within said peptide binding groove thereby hindering the binding of any other peptide within said peptide binding groove and is linked to said MHC class II by a processable linker; and

(c) an effector component, wherein said effector component is linked to said MHC class II component.

2. (Canceled)

3. (Currently Amended) The MHC class II compound of claim [[2]]1, wherein said processable linker is linked to said MHC class II β chain of said MHC class II component.

4-6. (Canceled)

7. (Original) The spaceholder molecule of claim 1, wherein said spaceholder molecule is a peptide.

8. (Original) The peptide of claim 7, wherein said peptide is about 12-15 amino acid residues.

9. (Original) The peptide of claim 7, wherein said peptide is about 13 amino acid residues.

10. (Original) The spaceholder molecule of claim 1, wherein said spaceholder molecule has the consensus sequence AAXAAAAAAAXAA (SEQ ID NO: 36).

11. (Withdrawn) The MHC class II compound of claim 1, wherein said spaceholder molecule is selected from the group consisting of PVSKMRMATPLLMQA (SEQ ID NO:1);

AAMAAAAAAAMAA (SEQ ID NO:2); AAMAAAAAAAAAA (SEQ ID NO:3); AAFAAAAAAAAAA (SEQ ID NO:4); and ASMSAASAASMAA (SEQ ID NO:5).

12. (Withdrawn) The MHC class II compound of claim 11, wherein said spaceholder molecule is PVSKMRMATPLLMQA (SEQ ID NO:1).

13. (Original) The MHC class II compound of claim 1, wherein said effector component is linked to said MHC class II α chain of said MHC class II component by a second linker.

14. (Original) The MHC class II compound of claim 1, wherein said effector component is selected from the group consisting of a fluorescent label, biotin, at least part a portion of an immunoglobulin protein, a metallic compound, luciferin, a radiolabel, a cytokine, a viral capsid protein and an enzyme.

15. (Original) The method of claim 14, wherein said effector component is biotin.

16. (Original) The MHC class II compound of claim 1, wherein said MHC class II compound is encoded by a nucleic acid molecule, and wherein said nucleic acid molecule comprises a nucleic acid sequence encoding a signal segment attached to the N-terminus of said MHC class II component.

17. (Original) The MHC class II compound of claim 16, wherein said nucleic acid molecule is operatively linked to an expression vector to form a recombinant molecule.

18. (Original) The MHC class II compound of claim 17, wherein said recombinant molecule is transformed into a host cell to produce a recombinant cell which expresses said recombinant molecule.

19. (Withdrawn) An isolated MHC class II compound comprising:

(a) an MHC class II component comprising at least a portion of an MHC class II α chain and an MHC class II β chain, such that said MHC class II α chain and MHC class II β chain form a peptide binding groove;

(b) an antigenic peptide molecule, wherein said antigenic peptide molecule binds within said peptide binding groove; and

(c) an effector component, wherein said effector component is linked to said MHC class II component.

20. (Withdrawn) The MHC class II compound of claim 19, wherein said antigenic peptide molecule comprises an antigenic peptide, a first linker and an affinity tag, wherein said antigenic peptide is linked to said affinity tag by said first linker.

21. (Withdrawn) The MHC class II compound of claim 20, wherein said antigenic peptide is at least a portion of an antigen selected from the group consisting of an autoantigen, an infectious antigen, a toxin, an allergen and a tumor-associated antigen.

22. (Withdrawn) The MHC class II compound of claim 21, wherein said affinity tag is dinitrophenol (DNP).

23. (Withdrawn) The MHC class II compound of claim 19, wherein said effector component is linked to said MHC class II α chain of said MHC class II component by a second linker.

24. (Withdrawn) The MHC class II compound of claim 19, wherein said effector component is selected from the group consisting of a fluorescent label, biotin, at least a portion of an immunoglobulin protein, a metallic compound, luciferin, a radiolabel, a cytokine, a viral capsid protein and an enzyme.

25. (Withdrawn) The method of claim 24, wherein said effector component is biotin.

26. (Withdrawn) The MHC class II compound of claim 19, wherein said MHC class II compound is encoded by a nucleic acid molecule, and wherein said nucleic acid molecule comprises a nucleic acid sequence encoding a signal segment attached to the N-terminus of said MHC class II component.

27. (Withdrawn) The MHC class II compound of claim 26, wherein said nucleic acid molecule is operatively linked to an expression vector to form a recombinant molecule.

28. (Withdrawn) The MHC class II compound of claim 27, wherein said recombinant molecule is transformed into a host cell to produce a recombinant cell which expresses said recombinant molecule.

29. (Withdrawn) A pharmaceutical composition comprising an MHC class II molecule of claim 19 and a pharmaceutically acceptable carrier.

30. (Withdrawn) A method of producing an MHC class II compound comprising the steps of:

(a) culturing a cell transformed with at least one nucleic molecule comprising a nucleotide sequence encoding:

(i) an MHC class II component comprising at least a portion of an MHC class II α chain and at least a portion of an MHC class II β chain, such that said MHC class II α chain and MHC class II β chain form a peptide binding groove;

(ii) a spaceholder molecule and a first processable linker, wherein said spaceholder molecule is linked to said MHC class II component by said processable linker and said spaceholder molecule binds within said peptide binding groove thereby hindering the binding of any other peptide within said peptide binding groove;

(iii) an effector component and a second linker, wherein said effector component is linked to said MHC class II component by said second linker; said step of culturing being conducted to produce said MHC class II compound;

(b) recovering said MHC class II compound;

(c) processing said processable linker, thereby releasing said spaceholder molecule from said peptide binding groove;

(d) incubating said MHC class II compound in the presence of an antigenic peptide molecule, wherein said incubation facilitates the binding of said antigenic peptide molecule to said peptide binding groove;

(e) recovering said MHC class II compound that has bound said antigenic peptide molecule.

31. (Withdrawn) The method of claim 30, further requiring repeating the steps (c) through (e) with different antigenic peptide molecules, thereby producing several MHC class II compounds that recognize several antigenic epitopes.

32. (Withdrawn) The method of claim 30, wherein said spaceholder molecule is linked to said MHC class II β chain by said first processable linker.

33. (Withdrawn) The method of claim 30, wherein said effector component is linked to said MHC class II α chain by said second linker.

34. (Withdrawn) The method of claim 30, wherein said spaceholder molecule binds covalently to said peptide binding groove.

35. (Withdrawn) The method of claim 34, wherein said spaceholder molecule binds with intermediate affinity.

36. (Withdrawn) The method of claim 34, wherein said spaceholder molecule binds with low affinity.

37. (Withdrawn) The spaceholder molecule of claim 30, wherein said spaceholder molecule is a peptide.

38. (Withdrawn) The peptide of claim 37, wherein said peptide is about 12-15 amino acid residues.

39. (Withdrawn) The peptide of claim 37, wherein said peptide is about 13 amino acid residues.

40. (Withdrawn) The spaceholder molecule of claim 30, wherein said spaceholder molecule has the consensus sequence AAXAAAAAAAXAA (SEQ ID NO:36).

41. (Withdrawn) The method of claim 30, wherein said spaceholder molecule is selected from the group consisting of PVSKMRMATPLLMQA (SEQ ID NO:1); AAMAAAAAAAMAA (SEQ ID NO:2); AAMAAAAAAAAAA (SEQ ID NO:3); AAFAAAAAAAAAA (SEQ ID NO:4); and ASMSAASAASMAA (SEQ ID NO:5).

42. (Withdrawn) The method of claim 41, wherein said spaceholder molecule is PVSKMRMATPLLMQA (SEQ ID NO:1).

43. (Withdrawn) The method of claim 30, wherein said effector component is selected from the group consisting of a fluorescent label, biotin, at least a portion of an immunoglobulin protein, a metallic compound, luciferin, a radiolabel, a cytokine, a viral capsid protein and an enzyme.

44. (Withdrawn) The method of claim 43, wherein said effector component is biotin.

45. (Withdrawn) The method of claim 30, wherein said antigenic peptide molecule comprises an antigenic peptide, a first linker and an affinity tag, wherein said antigenic peptide is linked to said affinity tag by said first linker.

46. (Withdrawn) The method of claim 45, wherein said antigenic peptide is at least a portion of an antigen selected from the group consisting of an autoantigen, an infectious antigen, a toxin, an allergen and a tumor-associated antigen.

47. (Withdrawn) The method of claim 45, wherein said affinity tag is dinitrophenol (DNP).

48. (Withdrawn) The method of claim 30, wherein said MHC class II compound is encoded by a nucleic acid molecule, and wherein said nucleic acid molecule comprises a nucleic acid sequence encoding a signal segment attached to the N-terminus of said MHC class II component.

49. (Withdrawn) The method of claim 30, wherein said nucleic acid molecule is operatively linked to an expression vector to form a recombinant molecule.

50. (Withdrawn) The method of claim 49, wherein said recombinant molecule is transformed into a host cell to produce a recombinant cell which expresses said recombinant molecule.